
SCIENCE OF CONTEMPORARY ISSUES 2 – COURSE SYLLABUS

University of Denver – CHEM 1002 – Winter Quarter 2016

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Office Hours: Mondays and Tuesdays from 3pm to 5pm in the SEC inside Anderson Academic Commons. If these times do not work for your schedule, e-mail me to make an appointment. Check my schedule on the Canvas homepage before writing your e-mail.

Teaching Assistants	Lab Sections	Office Hours (in the SEC)
Dylan Fudge Dylan.Fudge@du.edu	Section 03 Mondays at 2:00 pm Section 06 Tuesdays at 6:00 pm	Tuesday 2:00 pm – 4:00 pm
Nairi Pezeshkian Nairi.Pezeshkian@du.edu	Section 05 Tuesdays at 2:00 pm Section 09 Thursdays at 2:00 pm	Tuesday 12:00 pm – 1:00 pm Thursday 12:00 pm – 1:00 pm
Niki Shoup Niki.Shoup@du.edu	Section 07 Wednesdays at 2:00 pm	Monday 12:00 pm – 1:00 pm Wednesday 12:00 pm – 1:00 pm
Lukas Woodcock Lukas.Woodcock@du.edu	Section 04 Mondays at 6:00 pm Section 08 Wednesdays at 6:00 pm	Tuesday 2:00 pm – 4:00 pm
All labs are held in Boettcher West room 015 (the CHEM 1001 lab space)		

This course is the 2nd part of a three-part, yearlong course sequence that fulfills the natural scientific inquiry common curriculum requirement. In this quarter we will use the skills that you developed in CHEM 1001 to explore the real-world chemistry of water, nuclear power, nuclear weapons, electrical devices, renewable power plants, and the effect of carbon dioxide on the oceans. The skills from CHEM 1001 and CHEM 1002 will prepare you to learn about the large and sometimes complicated molecules present in plastics, drugs, foods, and your own body during the third quarter of this course. It is going to be interesting and a lot of fun.

Quarter	CHEM 1001: Fall	CHEM 1002: Winter	CHEM 1003: Spring
Topics	<ul style="list-style-type: none">• Sustainability• Air Pollution• The Ozone Layer• Climate Change• Fossil Fuels• Power Plants	<ul style="list-style-type: none">• The Purification Of Drinking Water• Nuclear Power• Nuclear Weapons• Solar Power• Batteries	<ul style="list-style-type: none">• Plastics• Drugs• Nutrition• Chemical Components of Foods• Genetically Modified Organisms (GMOs)

CANVAS COURSE WEBSITE: [HTTPS://CANVAS.DU.EDU/COURSES/23758](https://CANVAS.DU.EDU/COURSES/23758)

This is where you will go to print files for lab, turn in Warm-Up assignments, take quizzes, and see your grades from assignments. I will use the course Canvas page to post all course files and communicate with the class. If you haven't done so yet, go to Canvas now and:

- [Configure your notification settings](#) so that you are alerted when files, announcements, or grades are changed on the Canvas page.
- You do not need to purchase anything new for this quarter. We will use the same textbook and clickers.

LECTURES			
Section	Day and Time	Time	Location
01	Mondays and Wednesdays	12:00 noon – 1:30 pm	Olin Hall room 205
02	Tuesdays and Thursdays	10:00 am – 11:30 am	Sturm Hall room 281

EXAMS				
Exam	Section	Date	Time	Location
#1	01	Wednesday, Jan 27	12:00 pm – 1:30 pm	Olin Hall 205
	02	Tuesday, Jan 26	10:00 am – 11:30 am	Sturm Hall 281
#2	01	Wednesday, Feb 24	12:00 pm – 1:30 pm	Olin Hall 205
	02	Tuesday, Feb 23	10:00 am – 11:30 am	Sturm Hall 281
#3 (final)	01	Thursday, March 10	12:00 pm – 1:50 pm	Olin Hall 205
	02	Friday, March 11	10:00 am – 11:50 am	Sturm Hall 281

HOMEWORK	
Homework	Due (by 11:59 pm)
#1	Friday, January 8
#2	Friday, January 15
#3	Monday, January 25
#4	Wednesday, February 3
#5	Wednesday, February 10
#6	Wednesday, February 17
#7	Monday, February 29
#8	Monday, March 7

QUIZZES	
Quiz	During Lecture #
#1	2
#2	4
#3	6
#4	9
#5	11
#6	13
#7	15
#8	17

THE SCIENCE AND ENGINEERING CENTER (SEC)

Joe and the teaching assistants will hold office hours in the Science and Engineering Center (SEC), inside Anderson Academic Commons. For more information on the SEC, follow this link: <http://portfolio.du.edu/sec>

MY PLEDGE TO YOU

I want this class to be a valuable, meaningful, and memorable experience for all of you. I will do everything I can to make this the best class it can be. If you have comments, you can submit them **anonymously** at any time using an online survey tool. I will do my best to incorporate it into how I teach the class. Let's have a great quarter! This is the URL for the survey tool: <https://www.suggestionox.com/r/eb6eKS>

CHEM 1002 Class Schedule

Week	Sun	Monday	Tuesday	Wednesday	Thursday	Friday	Sat
	Jan 3	4	5	6	7	8	9
1		Lecture 1 5.0 – 5.3		Lecture 2 (Q1) 5.4 – 5.5 & 5.11 Lab 1 info		HW #1 due	
2	10	11	12	13	14	15	16
		Lecture 3 5.6 – 5.8		Lecture 4 (Q2) 5.9 - 5.10 & 5.12		HW #2 due	
3	17	18	19	20	21	22	23
		MLK Holiday No Lecture	Lecture 5 Finish ch 5 and 6.0 - 6.3 Lab 3 info		Lecture 6 (Q3) 6.4 – 6.5		
4	24	25	26	27	28	29	30
		Lecture 6 (Q3) 6.4 – 6.5 HW #3 due	Exam1 Chapter 5		Lecture 7 6.6 – 6.9 Lab 4 info		
5	31	Feb 1	2	3	4	5	6
		Lecture 7 6.6 – 6.9 Lab 4 info	Lecture 8 6.10 – 6.13 HW #4 due		Lecture 9 (Q4) 7.0 – 7.2 Lab 5 info		
6	7	8	9	10	11	12	13
		Lecture 9 (Q4) 7.0 – 7.2 Lab 5 info	Lecture 10 7.3 – 7.5 HW #5 due		Lecture 11 (Q5) 7.6 – 7.8 Lab 6 info		
7	14	15	16	17	18	19	20
		Lecture 11 (Q5) 7.6 – 7.8 Lab 6 info	Lecture 12 7.9 – 7.11 HW #6 due		Lecture 13 (Q6) End ch 7 & review Lab 7 info		
8	21	22	23	24	25	26	27
		Lecture 13 (Q6) End ch7 & review Lab 7 info	Exam 2 Chapters 6 and 7		Lecture 14 8.0 – 8.2		
9	28	29	March 1	2	3	4	5
		Lecture 14 8.0 – 8.2 HW #7 due	Lecture 15 (Q7) 8.3 – 8.5		Lecture 16 8.6 – 8.8		
10	6	7	8	9	10	11	12
		Lecture 16 8.6 – 8.8 HW #8 due	Lecture 17 (Q8) Finish 8 and review for final exam		Final Exam Chapters 5 - 8		

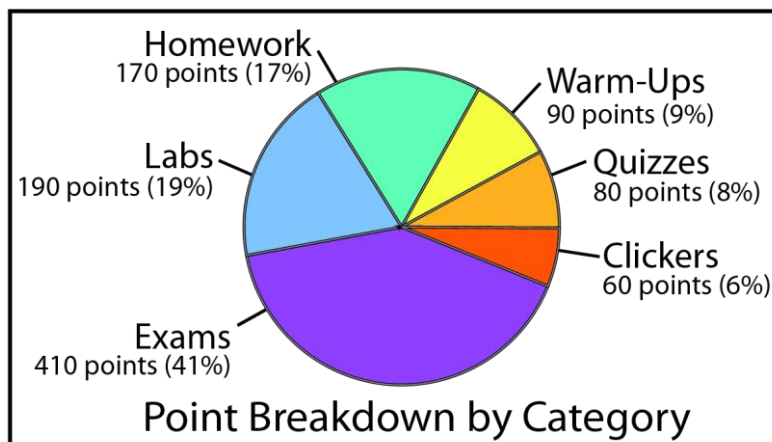
CHEM 1002 Lab Schedule

Week	Sun	Monday	Tuesday	Wednesday	Thursday	Friday	Sat
1	Jan 3	4	5	6	7	8	9
		First week of classes: no labs this week					
2	10	11	12	13	14	15	16
		Lab 1: Water Chemistry					
3	17	18	19	20	21	22	23
		MLK Holiday No Lab	Lab 2: Begin Lab 8 Infographic Assignment				
4	24	25	26	27	28	29	30
		Lab 3: Evaporation And Intermolecular Forces					
5	31	Feb 1	2	3	4	5	6
		Lab 4: Biodiesel Synthesis					
6	7	8	9	10	11	12	13
		Lab 5: Biodiesel Calorimetry					
7	14	15	16	17	18	19	20
		Lab 6: Visualizing Nuclear Radiation with Cloud Chambers					
8	21	22	23	24	25	26	27
		Lab 7: Building Batteries from Al, C, and O ₂					
9	28	29	March 1	2	3	4	5
		Lab 8: Infographic Presentations					
10	6	7	8	9	10	11	12
		Finals Week: No Labs					

ASSIGNMENTS & GRADING

Assignment Category	Points	% of Grade	Additional Info
Exams	410	41	2 midterm exams × 125 points 1 cumulative final exam × 160 points
Lab Assignments	190	19	Labs 1-7: 20 points each Lab 8: 50 points (multi-week assignment)
Homework	170	17	8 HW assignments × 20 points each Week 1 quiz (online) × 10 points
Warm-Up Questions	90	9	Full credit for participation 6 points per class × 17 classes 2 lowest scores dropped (6×15 = 90 pts)
Collaborative Quizzes	80	8	8 quizzes × 10 points each
In-Class Clicker Questions	60	6	Full credit for participation 4 points per lecture × 17 lectures 2 lowest scores dropped (4×15 = 60 pts)
TOTALS	1000	100	–

Letter Grade	Points
A	930 - 1000
A–	900 - 929.9
B+	870 - 899.9
B	830 - 869.9
B–	800 - 829.9
C+	770 - 799.9
C	730 - 769.9
C–	700 - 729.9
D+	670 - 699.9
D	630 - 669.9
D–	600 - 629.9
F	599.9 or fewer



- Final grades will be assigned based on the **point scale** shown above. The types of assignments and assignment-specific grading procedures are the same as those from CHEM 1001. If you have questions, talk with Joe or your TA.
- When your lowest scores for Warm-Ups and clickers are dropped, they will appear gray in the Canvas grade book.
- When calculating your course grade, pay attention to the number of points in the Canvas grade book, **NOT** the letter grade or percent score calculated by Canvas.

DESCRIPTION OF ASSIGNMENT CATEGORIES

Exams

- Composed of multiple-choice, fill in the blank, and long-answer questions.
- Bring a non-phone calculator and a pencil with an eraser to all exams.
- Make-up or late exams will not be available. If you are not present for one of the midterm exams, that exam will count for zero points and your final exam will count for 285 points instead of 160 points ($285 = 160 + 125$).
- I will provide the class with exams and answer keys from the previous year for practice.

Check the exam schedule now and make sure that you do not have any scheduling conflicts. Let me know if your schedule is incompatible with the exams.

Labs

- Unless otherwise noted, labs are always in Boettcher West room 015. See the Lab Schedule on Page 4 for more information.
- Lab points will be based on your preparedness and safety in lab, and your performance on pre-lab and post-lab assignments.
- **Pre-lab assignments** are due at the beginning of the lab period when the experiment will be conducted. These assignments will help you mentally prepare to do the experiment.
 - Most labs will include a pre-lab assignment, but labs #2 and 8 will not. For lab 8 you will be completing a multimedia assignment with your partner before the lab period, so there is plenty of work to do before lab, even though there is not a “pre-lab assignment.”
- **Post-lab assignments** are due at the beginning of your next lab period. Lab 8 will not have a post-lab assignment. To complete Post-labs you will analyze your data, create graphs with MS Excel, reflect on what you learned, and/or perform calculations.
- **Lab tardiness:** If you are late to lab by more than 10 minutes, you will miss the weekly safety lecture, and *you will not be allowed to perform the experiment.*
- **Lab attendance:** You cannot turn in the assignments for an experiment that you are not present for. *If you are going to miss a lab, plan ahead and try to reschedule the lab.*
- **Rescheduling Labs:** you are allowed to **reschedule one lab period per quarter:**
 - Labs can only be completed during the week they are scheduled in the syllabus.
 - The rescheduling must be completed before your normal lab meeting time.
 - You will need approval from your TA and the TA whose section you will work with that week.

For example, if you normally have lab on Monday but will be absent on Monday during week 5, you may complete lab #5 on Tuesday, Wednesday, or Thursday, as long as the TA from that lab period and your normal TA approve the switch before your normally scheduled lab period.

- ***The labs are a required component of the class – you will automatically fail the class if you miss two or more labs.***

Make sure that you understand this policy. It is a chemistry department policy that we must follow. **Avoid missing labs!**

Warm-Ups

- Before every lecture I will assign three to five Warm-Up questions.
- These are graded based on a thoughtful, complete effort, not on correctness. Students typically earn Warm-Up scores of about 100%, as long as they remember to submit the assignments. The two bullet points that follow give an idea of how the grading works:
 - Answers that use evidence to bolster their argument and show an understanding of the reading assignment will receive full credit
 - Answers that rely on direct quotes from the text, are composed of sentence fragments, or are left blank or incomplete will receive a score of zero
- **Warm-ups are due at 6:00 am the morning before every lecture.**
- Since Warm-Ups will be used during class, they **may not be turned in late.**
- Your lowest two Warm-Up scores will not be counted in your final grade.
- Some Warm-Ups will be marked “CER” and have additional requirements for full credit. See the Warm-Up assignments on Canvas and the page [“Claims Evidence Reasoning \(CER\) Instructions”](#).

Collaborative Quizzes

- These will be similar to other in-class quizzes that you have taken, with one exception: you will have time to compare answers with classmates and revise your answers based on your discussions.
- Study for these quizzes! They will give you valuable practice answering exam-style questions

Clickers

- I will ask multiple-choice questions in class and you will answer with your clicker. You will feel like you are playing a game and will have more fun. More seriously, clickers help me notice when the class is struggling with a difficult concept.
- Grades are based on participation, not correctness.
- If you are using the same clicker that you used for CHEM 1001, you do not need to register your clicker.
- In order to receive credit you need to **register your clicker**:
 - Go to the class Canvas page and complete the survey titled [“Clicker Registration.”](#) You will need your clicker in front of you to complete this survey.
 - You only need to complete this survey once.
- I will post clicker grades in the grade book at the end of each week. Check the grade book to make sure that you are getting credit.
- Consult these instructions to ensure that you understand how to use your clicker. Talk to Joe if you have questions.
https://www.turningtechnologies.com/pdf/UserGuides/ResponseCardRF_RF_LCD_2014.pdf

LATE ASSIGNMENTS

Homework assignments are the only assignments in CHEM 1002 that may be turned in late.

Late penalties are assessed as follows:

Late by 1 week or less	Late by more than 1 week
Score decreased by 50%	Automatic score of zero

ABSENCES

Excused absences – if you are missing class because of a family emergency, illness, a DU athletic event that you are competing in, or a religious activity, submit documentation of the event from the Office of Health and Counseling, your physician, the Athletics Office, etc.

Make-up assignments – If your absence is excused, make-up assignments and/or due date extensions can be arranged. If you do not provide at least 24 hours of advanced notice, we cannot guarantee that a make-up assignment will be available.

If you will be absent for any required course activities during the quarter, tell us about it as far in advance as possible, preferably by the end of the first week of classes. Regardless of the reason for your absence, you will need to provide documentation to validate your absence. You must complete all of the course assignments, but may be able to do so at a different time. Speak with Joe *before* your absence to work out the details. If you anticipate missing multiple days during the quarter, I recommend a meeting outside of class time where we can sit down and make plans for each of your expected absences.

TECHNOLOGY IN THE CLASSROOM

Phones – Please do not use your phone in the classroom. Phones are distracting to you and to those around you. If I notice you using your phone I will ask you to exit the classroom.

Laptops – You may want to bring your laptop to class to take notes or look up definitions of words. **However, if you use a laptop to take notes, please sit in the back of the classroom.** The changing colors and motion of a computer screen distract students around you, even if you are on-task for 100% of the time.

In my experience, laptops have an overall negative impact on student learning in the chemistry classroom. I recommend taking notes by hand and leaving your laptop at home.

STUDENT LEARNING OUTCOMES (SLOs)

Upon completion of this one-year course sequence, students should become proficient in these areas and/or develop these skills:

Scientific Inquiry – Natural and Physical World SLOs:

1. Apply knowledge of scientific practice to evaluate evidence for scientific claims.
2. Demonstrate an understanding of science as an iterative process of knowledge generation with inherent strengths and limitations.
3. Demonstrate skills for using and interpreting qualitative and quantitative information

Course-Specific SLOs:

4. Use graphs to display numerical data and interpret graphical data.
5. When presented with a science-related question, find relevant information to help you answer the question
6. Evaluate sources of information – especially information gleaned from the Internet – to determine their usefulness.
7. Use the skills described above to evaluate scientific claims in the news; learn to identify bogus science and overblown claims.